

Temporary Changes to Tiny BASIC to permit use on MZB-3 board

(Power on Jump E000)

<u>ADDR.</u>	<u>OLD</u>	<u>NEW</u>	
E000	3E 0C 21 D0 10 18 C2	21 D0 10 C3 DC E4 00	LD HL, 10D0 JUMP TO E4DC NOP
E4DC	00 00 00 00 00 00 00	DB FF 3E 0C C3 69 E0	INA, FF (Switch off P.O.J. address) LDA, 0C (This used to be done at E000 before) JP E069 (Jump back where we would have gone before)

NOTE THESE CHANGES FORM THE BASIS
OF THE NEW TINY BASIC VERSION 5.01

Changes to Keyboard 'KYBD' Routine To Shorten it to Make Space

	OLD	NEW	
E700	DB	DB	} 'KYBD' IN A, 04 (Read Keyboard)
	40	40	
	00	17	RLA (Get Strobe into CY)
	17	00	RET NC (Return if no key pressed)
	00	3F	CCF (Remove strobe)
	00	1F	RRA (Put ASCII data back, 7 bits, less strobe)
	AF	F5	PUSH AF (Save ASCII data)
	F5	DB	} 'TSTSTROBE' IN A, 04 (Read keyboard again)
	F1	40	
	F5	17	RLA (Get Strobe into CY)
	F1	38	} JR C TO 'TSTSTROBE' (Jump if strobe present)
	3D	FB	
	20	F1	POP AF (Strobe gone, so A gets ASCII data)
	F9	37	SCF (To indicate to next routine, that key board had data)
	DB	C9	RET (Return, with data in A and CY set)
E710	40	00	
	00	00	
	F5	00	
	DB	00	
	40	00	
	00	00	
	17	00	
	00	00	
	38	00	
	F9	00	
	F1	00	
	37	00	
	C9	00	
			NOPS (Space released for other purposes)

Changes to 'CHIN' Routine to Permit Reading of Front Panel switch at Bit 5, Port 04

	OLD	NEW	
E682	CD	CD	} CHIN: CALL 'KYBD'
3	00	00	
4	E7	E7	
5	D8	D8	RETC ('KYBD' had data, so go away and use it)
6	3A	0E	} LDC, 04 (Port 04 is the Tape UART status)
7	02	04	
8	D0	CD	} CALL 'ANYONE THERE ?' (This tests for the switch and also sets B to the contents of the UART status)
9	17	1D	
A	30	E7	
B	F6	20	} JR NZ TO 'CHIN' (The switch is found at '1', don't do any more, just jump back)
C	3A	F5	
D	01	CB	} BIT 6, B (So: the switch was '0', now look at DAV)
E	D0	70	
F	C9	28	} JR Z TO 'CHIN' (Jump is DAV was 0 i.e. no data was available)
E690	0D	F1	
1	0D	DB	} IN A, 05 (So: data was available, put in A)
2	0D	05	
3	0D	C9	} RETURN, (with data in A).
4	0D	00	

Subroutine "ANYONE THERE?"

E71D	ED 40	IN B, (C)	} see our ref AN-C21/3 for comments
	CB 68	BIT 5, B	
	C9	RET	

Changes to 'SOUT' Routine to Permit Reading of Front Panel Switch at Bit 5, Port 04

	OLD	NEW	
E69F	32 — 0E 01 — 04 D0 — CD 3A — 1D 02 — E7 D0 — C0 87 — CB F8 — 78 18 — 18 F9 — D4	} } } } } } } } }	'SOUT': LD C, 04 (Tape UART status is on port 04) CALL "ANYONE THERE?" (To test for switch and get UART status contents into B) RET NZ (Return if sw was 1) BIT, 7, B (So switch was 0; we proceed by testing the TBMT bit) JR to 'MORE' (Have to go - have run out of space)

E67D	00 — 28 00 — 20 00 — D3 00 — 05 00 — C9	} } } } }	'MORE': JRZ to 'SOUT' (Loop back until 'TB' is 'MT') OUT 05, A (When it is send out the data, which has been in A all this time) RET (Return, probably to get another character)

Subroutine "ANYONE THERE?"

E71D	ED 40 CB 68 C9	IN B, C BIT 5, B RET	} See our Ref. AN-C21/3 for comments
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D.M.A.

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Modifications to Hardware

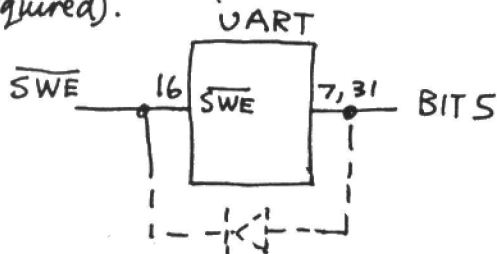
The changes to the Tiny BASIC Interpreter are described herein and in our note ref AN-C21/3. They permit UARTs to be connected to the output ports 04, 05, 06, 07 so as to control a printer and tape recorder interface.

These particular ports have been chosen deliberately so that the Kemitron SIO board can be used with minimal modifications.

It is desirable that the software will continue to work even if the tape and printer interfaces are absent, and so it must have some means of testing for the presence or absence of the appropriate UART.

The method we have chosen is to test bit 5 of the data at the UART status ports. If the UART is absent this bit will float to a '1' (or a pull-up resistor can easily be added if it doesn't), and a simple modification to the SIO board will ensure bit 5 is low if there is a UART requiring service.

We consider the additional flexibility gained is worthwhile, even though it does necessitate the following hardware modification: A diode must be fitted ^{to each} of the UARTs on the SIO Board (two diodes required).



The diode pulls bit 5 low and prevents it floating high when $\overline{\text{SWE}}$ (Status word enable) goes low.

The diode should have a low forward voltage drop (e.g. germanium or schottky type) but a simple 1N4148 can be used in an emergency.

Needless to say, more exotic circuits are possible (and desirable), incorporating for example an 'off-automatic-on' frontpanel switch and LED indicator, as indicated in the first half of our note Ref AN-C21/3.

A useful application of the 'automatic' position of the printer switch is to get the printer to print only selected items from the VDU screen. This is done in the excellent '280 Disassembler' program by R. Eldridge. All the comments and options which appear on the screen are not printed, only the actual disassembled listing itself is printed - giving a 'clean' listing.